

NOVEMBER, 1944



BUSINESSES CONDITIONS

A REVIEW BY THE FEDERAL RESERVE BANK OF CHICAGO

Wartime Federal Reserve Policy

Stable Interest Rates Maintained

Just prior to the United States' entry into the war Federal Reserve System credit policy was directed primarily toward maintaining orderly conditions in the Government securities market. It was not the aim of policy to maintain at any fixed level security prices and interest rates, which might change as the result of factors outside the Federal Reserve System's control.

Following Pearl Harbor, with the vast war borrowing program, Federal Reserve policy was gradually directed toward two main objectives: (1) supplying member banks with sufficient reserves to assure that Treasury financial requirements would be met, and (2) maintaining prices in the Government securities market to assure that Treasury financing would be done at reasonable rates in a stable market, and to discourage investors from withholding purchases in order to obtain higher rates later on. That the Federal Reserve System has been successful in meeting these objectives is indicated by the fact that the war program has never been held up for lack of funds and by the maintenance during the war of a virtually constant pattern of interest rates on Government securities, ranging from $\frac{3}{8}$ per cent on Treasury bills to 2 per cent on ten-year bonds and $2\frac{1}{2}$ per cent on twenty-five-year bonds.

DEPOSIT EXPANSION DISCOURAGED

While giving assurance that the war effort would never lag because of a shortage of funds, the Federal Reserve System has made every effort to reduce the amount of Treasury financing through the banking system to the minimum consistent with the smooth operation of the war economy. When the Treasury sells securities to the banking system it obtains from the banks deposit credits which previously did not exist. As the Treasury spends these deposits to meet its war and other expenditures the deposits are added to the total stock of money in the hands of the public. This is in sharp contrast to the effect on the stock of money of Treasury expenditures financed by taxation or by the sale of securities to others than banks. Tax payments or purchase of securities by nonbank investors result in a transfer of funds from the public to the Treasury. When the Treasury disburses these funds they are again returned to the public, with the result that the total stock of money is left unchanged.

Among the steps taken by the Federal Reserve System to reduce inflationary pressures have been vigorous support of heavy wartime taxation, endorsement of price and rationing controls, restriction of consumer credit terms under Regulation W, participation in the organization and administration of war loan drives, and attempts to curb bank credit expansion during these drives. However, despite these and other efforts by the Government, the total stock of money rose by more than 60 billion dollars between Decem-

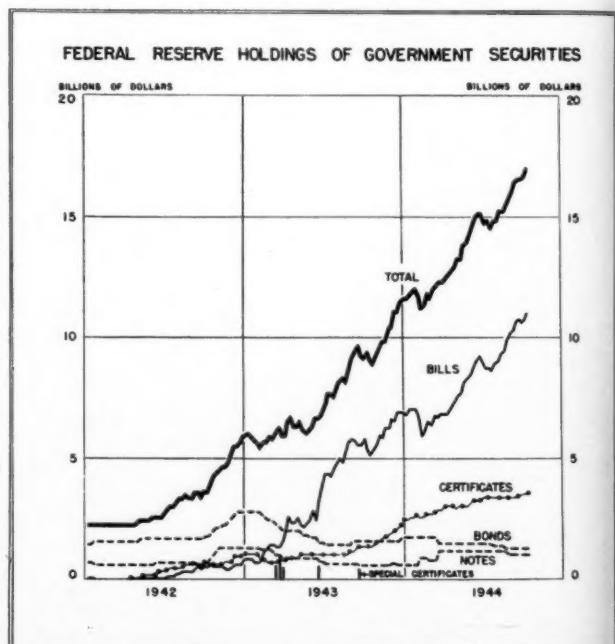
ber 31, 1941 and July 31, 1944—bank deposits, other than interbank deposits, increasing from less than 69 billion dollars to more than 118 billion dollars, and money in circulation from 11 to over 22 billion dollars.

Approximately matching this expansion in the money supply has been an addition of about 63 billion dollars to holdings of Government securities by commercial and Federal Reserve Banks between the end of December 1941 and the end of July 1944. This represents about 43 per cent of the 146 billion dollar increase in the public debt, direct and guaranteed, over this period and approximately 33 per cent of the 190 billion dollars of Government war expenditures. It should be pointed out that much of the large increase in the stock of money has reflected a genuine need by individuals, business firms, and the Government for additional cash balances to carry on smoothly the enlarged volume of transactions in the war economy and for a liquid hedge against the many uncertainties created by the war environment.

RESERVE BANK CREDIT EXPANDS

Between the end of 1941 and November 1, 1944, Federal Reserve Bank credit increased from 2.4 billion dollars to 18.3 billion dollars in order to supply member banks with the reserves needed to support the wartime expansion in the money supply. By far the largest part of this 15.9 billion dollar increase in Reserve Bank credit has been

(Continued on Page 7)



Soil Depletion — A Challenge to Farming

Fertility Drain Far Exceeds Replacement

Bankruptcy of the soil is something contemplated by a very few farmers. Like any other reserve, the fertility of the soil cannot forever be drawn upon without eventually over-drawing the account. Because of the richness of many of the American soils little thought in the past has been given to the limitations of cropping which the soils of the district can stand.

To be sure, farmers in the Seventh Federal Reserve District have long been sold upon the importance of crop rotation, and have been extensive users of legume crops in order to improve nitrogen balance. But the alarming extent to which drains of essential fertility elements from the soil exceed replacements is not generally recognized by farmers. Recent surveys show that nearly all farmers think that the fertility of their soils is not less than it was ten years ago.

During the last five years of war farmers of the district have very materially stepped up their crop production above the levels prevailing in the five years preceding the war. This increase in the output per acre of the district's farms has made very serious drains upon the fertility reserves of the soil. This was beyond doubt a wise use of such reserves, since one can scarcely conceive of needs for agricultural production more critical than those prevailing during this war. However, it is time to begin to take stock of what is happening to soil fertility, and to begin to think and plan seriously about making larger offsetting deposits to these fertility accounts before the yields begin to come out stamped figuratively "insufficient funds."

Perhaps no one would question that we have been drawing excessively on fertility elements in the soil during the last five years. But probably few people realize the extent to which, even in normal times, we were mining the soil, exploiting it in the sense of taking out much more than we were replacing. Some students of the problem say that even in prewar years we were extracting from the soil 8 to 9 times as much fertility as was being returned. For some states in the district and for some elements the ratios are almost unbelievably much higher than this.

MANY ELEMENTS IMPORTANT

For purposes of effective and economical crop production two groups of elements are required. The first group, commonly referred to as major elements, are required in relatively large quantities for effective plant growth. These are carbon, hydrogen, oxygen, nitrogen, phosphorus, potassium, calcium, sulphur, and magnesium. Of these, carbon, hydrogen, oxygen, and a portion of the nitrogen are obtained from the air and from water. The remaining items must be obtained from the soil. The second group of elements, often referred to as "trace" elements, are not less important than the so-called major elements. They are just as essential to healthy plant growth. But these are less important quanti-

tatively and at the present stage of the nation's soil development they do not constitute as great a problem in soil maintenance as do the major elements. The trace elements are iron, manganese, boron, copper, and zinc.

The balance of the discussion in this article will be confined to certain points regarding only three of the major elements: nitrogen, phosphorus, and potassium.

Nitrogen is an essential constituent of all plant and animal structures. It is especially important in the tissues concerned with growth and reproduction. The rate of growth of plants is more dependent upon nitrogen than any other single element. Without nitrogen there would be no growth or reproduction in either plants or animals. Nitrogen supplies in the soil are supplemented from the air. The most important device by which supplies from the air are stored in the soil is the fixing of nitrogen in the roots of certain plants by bacterial action in the tissue of the roots. Plants capable of this fixation are known as legumes. Common legume crops are alfalfa, clover, soybeans, peas, and beans. It is generally believed that a legume like the soybean supplies about one-third of the nitrogen content of the total mature plant from the nitrogen fixed in the roots. Best results are obtained from soybeans in rotation when the entire crop is plowed under as a green manure. Cutting for hay or harvesting for beans leaves less nitrogen as a reserve in the soil than plowing the crop under.

The great importance of phosphorus in general farming arises from the fact that low yield is more often due to a lack of phosphorus than to the lack of any other element. It is found in every living cell and is essential to both plant and animal nutrition. In plants it is heavily concentrated in the seeds. Adequate phosphorus in cells promotes rapid plant growth and development, accelerates maturity and improves the quality of vegetation. It is especially important in these northern states where, in such crops as corn, maturity before frost date is highly important.

Potassium is widely prevalent in the earth's soils but only a very small amount of it is available to plant growth because of the slowness with which it is converted to useful forms. Potassium is important to the plant in promoting full vigor, providing resistance to disease, and promoting the growth processes. Abundant supplies of available potassium are also of material assistance to the plant in utilizing soil moisture advantageously, especially during drought.

FERTILITY REQUIREMENTS VARY

Obviously, the drain in plant nutrients from the soil varies considerably between different crops. In general nitrogen is the most important element quantitatively, but this should not be taken to mean that it is the most important element in plant growth. Each essential element is vital to successful cropping and soil management. Each plant spe-

cies has an optimum requirement for each of the elements, and the quantity of that element required for maximum production per acre of the crop has no relationship to the quantitative requirements for the same element in other crops.

A deficiency of any one of the vital elements of plant nutrition in a given soil is a substantial bottleneck limiting the growth of a given crop, and cannot be offset by relative excesses of other nutrients. For example, some soils in the district have sufficient nitrogen and phosphorus for high yields of corn, but a deficiency of potassium limits yields to as low as 20 bushels per acre. Additions of small amounts of potassium have resulted in raising corn yields very substantially on such soils.

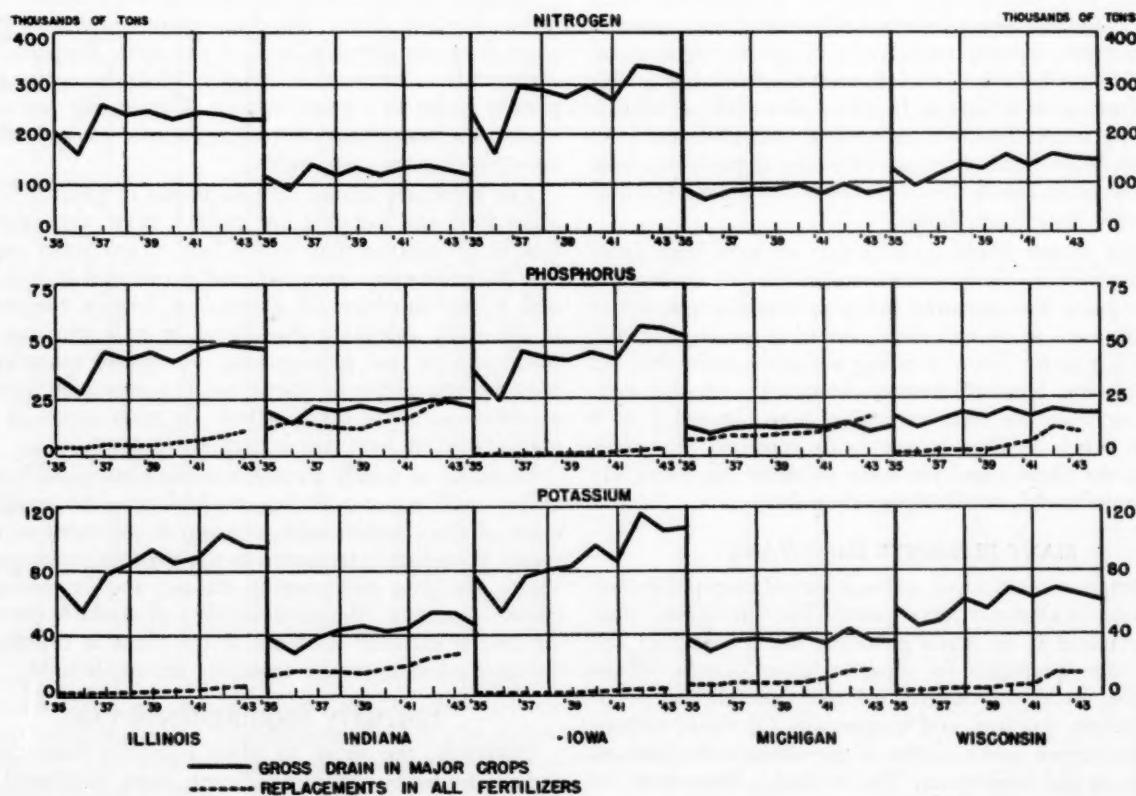
In terms of soil management different crops vary in the drain upon the soil. The following table illustrates the content of three elements in terms of pounds per acre, using

illustrative yields. The figures shown are the estimated content for grain only, except in the case of hay.

| | Nitrogen (in pounds per acre) | Phosphorus | Potassium |
|-----------------------------|----------------------------------|------------|-----------|
| Corn (45 bushels)..... | 44.9 | 6.8 | 8.6 |
| Wheat (25 bushels) | 33.0 | 6.2 | 6.5 |
| Oats (30 bushels) | 18.8 | 3.5 | 4.6 |
| Soybeans (25 bushels) | 83.6 | 10.4 | 28.7 |
| Tame Hay (one ton) | 47.8 | 5.0 | 30.0 |

Two points in this table deserve emphasis. It is sometimes believed that soybeans grown for beans are not particularly a soil-depleting crop because, being a legume, under proper management the nitrogen balance can be maintained. However, the losses in phosphorus and particularly potassium per acre of soybeans harvested are exceedingly large. The second point is that many farmers believe that hay is not particularly soil depleting. This would be true if all the hay were fed on farms and the manure carefully con-

ESTIMATED DRAIN AND REPLACEMENT OF PLANT NUTRIENTS *



*Caution: The relatively better showing for Indiana, Michigan, and Wisconsin is due in part to understatement of gross drains, since the major crops used in calculating gross drains are relatively more important in Illinois and Iowa.

served and returned to the land with a minimum of loss and deterioration. But over the district as a whole, less than one-half of the plant nutrients in livestock manures find their way back into the soil as an addition to reserves or a replacement of plant nutrients taken out. Where hay is sold off the farm, the drain upon the essential elements in the soil is substantial.

Fertility is lost from the soil by leaching, by erosion, and by net drain of crops and livestock sold off the farm. Aside from erosion control, there are only two general methods for maintaining soil fertility. Proper handling of livestock manures so as to save the maximum of plant nutrients is essentially a negative measure in the sense that it only conserves plant elements and minimizes the net loss. The second method is the use of fertilizers imported onto the farm for the purpose of adding to and building up the reserves of essential elements.

FERTILITY DRAINS LARGE

An attempt is here made to estimate the gross nutrient drains (nitrogen, phosphorus, and potassium) from the soils of the district by certain major crops. Crops used were wheat, corn, oats, barley, rye, soybeans, and tame hay. The nutrient contents for grain only were counted, except for hay. Deductions were made for the amounts of such crops fed to livestock. Of the amounts deducted for livestock feeding only that part was counted as a loss of nutrients which was not contained in the manures plus estimated losses in the manure itself. It must be emphasized that these procedures underestimate the loss of nutrients from the soil. This is obvious when it is recognized that no account has been made for minor crops including truck and vegetable crops, no allowance has been made for losses from pasturing, and no deduction was made for losses in straw or stover.

On the basis of this analysis it appears that in some years during the war the gross drain of nitrogen from the soils of the Seventh District was as high as 20 per cent above the average of the prewar years. For phosphorus the loss was as high in some areas as one-third above the earlier period. The drains of potassium ran as high as 40 per cent above the 1935-39 period for the district.

The charts show the estimated gross drains of nitrogen, phosphorous, and potassium for each state for the years 1935-44. It must be emphasized that these are in thousands of tons of the three elements, and that the losses shown are only for the major crops covered in the estimates. Similar figures covering all farm output would be substantially larger.

INCREASING USE OF FERTILIZERS INADEQUATE

In the five years preceding the war (1935-39) farmers in the five states of the district were using some fertilizers—more so in Indiana and Michigan than in the other states. By the end of 1943 the tonnages of nitrogen, phosphorus, and potassium applied by farmers in the district were more than twice the average annual rate for the five prewar years.

For purposes of calculating the use of fertilizers in the

district the annual total of sales of all fertilizers for each state has been reduced from the reports on average analysis to tons of the elements contained, that is, to tonnages of nitrogen, phosphorus, and potassium.

The most striking gains for all three elements have been shown by the state of Iowa where very little fertilizer was used in the prewar years. The use of nitrogen in 1943 in Iowa was more than ten times as much as in 1935 and more than five times larger than the five-year prewar average. The rates of increase in the use of phosphorous and potassium were even more striking.

For Wisconsin the 1943 use of nitrogen was more than four times that in the prewar years and for phosphorus and potassium nearly five times as large. Applications of nitrogen in Illinois were not quite three times as great in 1943 as in the five prewar years, while the use of phosphorus was about doubled, about one-half of which was from the phosphorus which became available from the use of rock phosphate. Applications of potassium were not quite double in 1943 what they were in the prewar years.

But even the increased applications of fertilizers have been too small to offset the increases in drain of nutrients. *In nearly every state the net drains from cropping after allowing for increased replacements were greater during the past four years than in the five prewar years.* In the charts the replacements of nitrogen are not shown because they are so small that they can not be shown.

A SOBERING SITUATION

In view of the rates at which the basic elements of the soil are being depleted, the prospect for the generations to come is an extremely serious and sobering one. There is a vast amount of work to be done in getting farmers, indeed the agricultural public as a whole, to face up to the job that must be done in achieving scientific management of soil fertility and obtaining a balance between what is taken out of the soil and what is conserved and replaced. If this job is not done the nation eventually faces bankruptcy of the soil.

Bankers in agricultural communities have a responsibility not only to develop a better understanding of this problem, but also to take an aggressive part in leading a crusade in their territories to check the drastic losses of soil fertility and to foster sound soil management to the end that the basic agricultural resource—soil fertility—shall be maintained in a solvent state.

OPPORTUNITIES FOR BANKERS

There are practical opportunities for creative lending in this field. For example, in some of the low potassium areas of the district an expenditure of about two dollars per acre for potassium fertilizer will increase corn yields as much as 10 bushels per acre. Some bankers have already started sound operations along these lines.

What is said and implied above does not mean that the critical situation applies to each and every specific farm. How much fertilizer to place upon a given soil in order to

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Outlook for Midwest Industry-II

Postwar Manufactures Likely to Resemble Prewar Pattern

Despite unprecedented expansion and adjustment throughout the war period, the pattern of Midwest industry following conversion very likely will resemble strongly the pattern which existed before the war. Productive capacity will be larger perhaps by one-fifth. Many new firms and products will be present and some former ones will have disappeared. Nevertheless, manufacturing in the Seventh Federal Reserve District, it now appears, will still be dominated by automobiles, food products, iron and steel, and machinery. In contrast, some other regions of the nation, notably parts of the South and Far West, which have experienced some entirely new industrial growth during the war, probably will emerge from conversion with substantially changed industrial patterns from those which existed before the war.

In 1939 the Seventh District states, Illinois, Indiana, Iowa, Michigan, and Wisconsin, had at least 100 million dollars of products in 18 peacetime manufacturing groups as classified by the United States Bureau of the Census, in-

dicating a broad base of diversified manufactures. At the same time, however, roughly two-thirds of the production was concentrated in automobiles, food, iron and steel, and machinery.

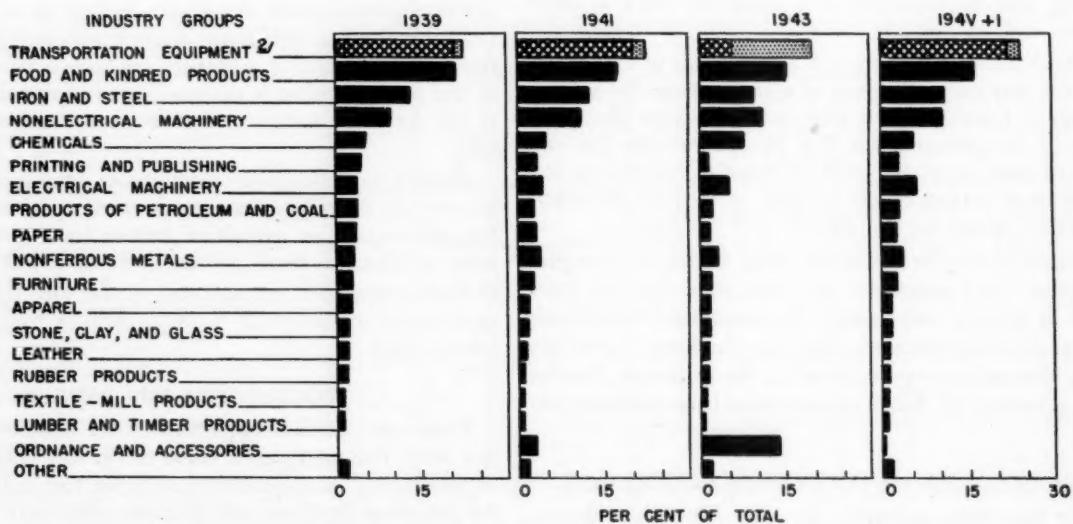
Industrial production in the five states, which amounted to 13.5 billion dollars in 1939, is now estimated to have reached 22 billion dollars in 1941 and 35 billion in 1943. To provide a basis for judging the relative magnitudes of probable postwar shifts among industry groups in this area, a total industrial production figure of about 25 billion dollars has been used, derived from tentative estimates and assumptions, covering the first full year after the end of the war with Japan. The distribution of estimated industrial production, in the periods mentioned, among the 19 component industry groups is shown graphically. In 1943 a striking shift in industrial emphasis is apparent when aircraft and ordnance, both virtually new industries in the area since 1939, accounted for more than one-fourth of total production. Since these latter industries, however, are

WARTIME SHIFTS IN INDUSTRIAL PRODUCTION

INDUSTRY GROUPS BY PER CENT OF ESTIMATED TOTAL VALUE

SEVENTH FEDERAL RESERVE DISTRICT STATES 1/

1939, 1941, 1943, 194V+1



1/ ILLINOIS, INDIANA, IOWA, MICHIGAN, AND WISCONSIN.

2/ AUTOMOBILES AND AUTOMOBILE EQUIPMENT

OTHER (ALMOST ENTIRELY AIRCRAFT, 1943)

SOURCE: UNITED STATES CENSUS OF MANUFACTURES, 1939; LATER YEARS ESTIMATED.

expected to decline sharply during and after the Japanese phase of the war, regardless of the level of general business conditions, it seems probable that the former peacetime pattern of industrial production to a large degree will be resumed.

In the first full year following total victory, it is now estimated that automobiles, food, iron and steel, and machinery will again account for at least two-thirds of total production. Within this group, food and steel may be relatively less important than formerly because of the gains in automobiles and machinery. Moreover, as a result of the wartime expansion and greater peacetime demand, the aircraft, chemical, nonferrous metals, and furniture industries are expected to account for a larger proportion of Midwest industrial production than in 1939.

POSTWAR IMPORTANCE OF MIDWEST

Will the Midwest be more important or less important as an industrial center in the nation as a result of the war? The available evidence is not conclusive, but Midwest industry in general probably cannot be expected to show marked gains relative to the rest of the nation.

The Seventh District states in peacetime produced 24.1 per cent of the nation's manufactured products and probably had at least that proportion of the nation's industrial productive capacity. During the war these five states have received a slightly higher proportion, 24.9 per cent, of all major prime war supply contracts and a somewhat smaller proportion, 22.1 per cent, of all Government-financed war facilities. Unfortunately, data are not available to show the volume of subcontracts in these five states, but there is, however, agreement that firms in the Seventh District states receive more subcontracts from businesses outside the district than outside firms receive from the Midwest. For this reason the proportion of all subcontracts in the Midwest probably exceeds that for prime contracts.

Among these Midwest states wartime trends have differed sharply. Only Michigan and Indiana have received larger proportions of the nation's war contracts than they had of 1939 manufactures. Indiana alone has had a greater proportion of new war facilities than might be expected from the size of peacetime industrial output. In some respects, consequently, the Midwest has barely held its own industrially during the war, despite having made many of the largest absolute gains in the nation. Wartime gains here have been unprecedented, but some other areas with fewer and smaller prewar manufactures have advanced considerably, both relatively and absolutely, in the national manufacturing scene during the war.

The extent to which the Midwest will hold its wartime gains as compared with other regions cannot now be clearly foreseen because numerous decisions have to be made with respect to Government-owned plants both by prospective purchasers and Government officials. Nevertheless, the outlook is for the most part favorable. Although more industrial facilities constructed and installed in the Midwest since 1940 seem likely to require conversion for peacetime use-

fulness than in many other sections of the nation, at the same time it seems probable that most of these new facilities will lend themselves more easily to such conversion. More specifically, the Midwest's largest war facilities to produce aircraft parts and engines; heavy guns, ammunition, and tanks; numerous iron and steel products; and machinery generally can be put to peacetime use much more easily than, for example, facilities to build ships, assemble aircraft, and make explosives, all relatively less important than other war manufactures in this area. Present war products of many Midwest industries, in short, very frequently may not find heavy regular civilian demand, but the facilities commonly are not so specialized as to prevent extensive conversion and peacetime use.

The first article on the "Outlook for Midwest Industry," appearing in the October 1944 issue of *Business Conditions*, considered the transition prospects for Seventh District industry as a whole and its largest industry groups: transportation equipment, food products, and ordnance and accessories. The criteria for judging these prospects, stated in the earlier article, also have been used in considering the outlook for the other industry groups to be mentioned here.

IRON AND STEEL

Production of iron and steel, third ranking industry group in the Seventh District during peacetime, has surged upward to a rate nearly double that of 1939. The 1940-43 output total was the largest for any previous four-year period. Despite this record growth, however, the iron and steel group has dropped to fifth place among district industry groups because of the relatively greater gains in aircraft, ordnance, chemicals, and nonelectrical machinery production.

To meet the unprecedented demands of the armed forces, prime war supply contracts totaling more than 900 million dollars have been awarded to district iron and steel plants. Since iron and steel are used extensively in most types of heavy war equipment, prime war contracts reflect only a small portion of volume of production. Shipbuilding is now the largest consumer of steel, although this is not reflected in prime war contract data. More than 440 million dollars in iron- and steel-making facilities have been added to the district's prewar capacity.

During the period between the ends of the European and Japanese wars, the demand for iron and steel is expected to remain relatively high, but to decline with the inevitable curtailment of the shipbuilding program. Some iron and steel is already being released for the production of civilian goods, and a substantial backlog of demand for iron and steel remains to be met. The general expansion in iron and steel capacity throughout the nation since the beginning of defense preparations is commonly expected to provide a national capacity substantially in excess of peacetime needs, and steel will face some competition from light metals and plastics. The Seventh District industry will share in this adverse situation. Possible abandonment of some obsolete equipment will aid supply-demand relationships.

Conversion to peacetime production is likely to be much less a problem for steel than for some of the other leading wartime industries. Probably about three-fourths of wartime facility expansion will be usable in civilian production if demand is sufficiently large. Most iron and steel plants can be converted in less than three months, and surplus problems are expected to be manageable. Government ownership of new facilities in the industry group is approximately 65 per cent.

MACHINERY

In general, prospects for machinery production, electrical and nonelectrical, are considered to be favorable during and for some time after the war in the Pacific. Reconversion is expected to be accomplished with minimum difficulty to meet a heavy backlog of demand of both consumers' and producers' durable goods.

A wide diversity of products characterizes the nonelectrical machinery group ranging from heavy industrial and agricultural machinery to washing machines and refrigerators. By value, production of the nonelectrical group has increased more than three times since 1939 when it ranked fourth among district industries. Machine tools, which constitute about one-third of the nonelectrical group, are already in considerable demand for retooling plants during conversion, but specialized rather than general-purpose machine producers will benefit the most. Following the war with Japan and the completion of most industrial conversion, machine tool production is expected to be well below current levels, depending to a large extent upon export requirements. Engines, turbines, industrial and farm machinery, tractors, and domestic machinery appliances generally will be in heavy demand throughout the conversion period and for at least a year thereafter, assuming favorable general economic conditions and export prospects.

Conversion of nonelectrical machinery facilities to peacetime production will also require a relatively short period, with most plants needing less than three months. From 50 to 75 per cent of new wartime facilities probably will find some immediate postwar use. Government owns more than half of the new structures and equipment. Surplus stocks of some types of nonelectrical machinery, especially general-purpose machine tools, are expected to be large, but probably will not seriously disrupt early postwar markets.

The electrical machinery group, which also includes a diversified list of industries, is dominated by electrical equipment for industrial use, communication equipment, and home appliances. The general outlook for this group is also quite favorable, again because of a huge pent-up demand. The demand level is expected to be considerably above production both in the interim period between the European and Pacific wars and for at least a full year thereafter. Facility expansion during the war has been eighth among all industry groups compared with seventh ranking in peacetime production. The wartime production rank is estimated also to be eighth, although value of output is more than triple the 1939 level.

CHEMICALS

This industry group, which includes industrial chemicals, drugs, and explosives, has expanded production in the district more than three times since 1939 largely because of requirements for heavy ammunition and chemical components needed in related war products. Chemicals have ranked fifth among industry groups in the district in peacetime and sixth during the war.

New facility gains since 1940 have exceeded 300 million dollars, financed nearly 60 per cent by public funds. Many of these specialized war chemical plants are located outside of the district's principal industrial areas for security reasons. Because of their location and primary use in meeting wartime munitions needs, less than half of the new facilities are expected to be used in production of civilian goods.

Industrial chemicals including plastics probably will be in heavy demand during and for some time after general industrial conversion, but explosives can face only a steadily declining demand following the war in Europe, reaching a negligible level shortly after the close of the war with Japan. Industrial chemical plants will require on the average about three months or less to convert, but powder plants most likely will be kept in standby condition or dismantled because of the difficulties to be faced in attempted conversion to peacetime use.

NONFERROUS METALS

Growth in the production of nonferrous metals, principally aluminum and magnesium, in the Seventh District during the war has raised total output to nearly three times the prewar level. These light metals have been needed primarily in aircraft construction, so that with future cutbacks in the aircraft production program, nonferrous metal requirements will be substantially reduced.

The district's wartime facility expansion in nonferrous metals has exceeded 200 million dollars. Probably less than half of the new facilities will find immediate postwar use. With no major peacetime substitute for the wartime demand of the aircraft industry now foreseen, and with sharp competition expected from light steels and plastics during and after conversion, the short-run production outlook for the nonferrous metals group may be only moderately better than during 1941.

OTHER INDUSTRIES

The remaining ten industry groups comprise a relatively small but important segment of Seventh District manufacturing production. These ten groups, covering furniture, leather, rubber, textiles, paper, petroleum and coal products, lumber, apparel, printing, and stone, clay, and glass products, accounted for 23 per cent of 1939 industrial production in the five district states. Because of the relatively greater importance of the larger industries, this group of other industries has declined in importance during the war to probably less than 15 per cent of the total. After final victory it seems probable that these ten industry groups will regain much of their prewar relative importance, contribut-

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WARTIME FEDERAL RESERVE POLICY

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needed to offset the tendency for member bank reserve balances to decline as a result of expansion of money in circulation to over 24.4 billion dollars on November 1, 1944. Between the end of 1941 and November 1, 1944, to satisfy the demands of their customers for currency, member banks drew on their reserve balances to the extent of about 13.2 billion dollars to obtain the needed currency from the Federal Reserve Banks. But for this insistent demand for currency by the public the wartime expansion in Reserve Bank credit would have been materially less. If, for example, the public had chosen to hold this money in the form of demand deposits instead of currency, the necessary expansion in Reserve Bank credit would have been about 5 billion dollars instead of the almost 16 billion dollars which actually occurred.

Other factors have also made necessary an increase in Reserve Bank credit since the end of 1941. Chief among these has been a reduction of about 2 billion dollars in the monetary gold stock, which on November 1, 1944 stood at 20.7 billion dollars, and an expansion of somewhat under 1.6 billion dollars in member bank reserve balances. Offsetting these to some extent, and thereby requiring a smaller expansion in Reserve Bank credit than would otherwise be the case, was an increase of almost 900 million dollars in Treasury currency outstanding.

Of the total increase of 15.9 billion dollars in Reserve Bank credit which occurred between the end of 1941 and November 1, 1944, approximately 15.4 billion dollars reflected acquisition of Government securities by the Federal Reserve Banks, and of the remainder over 300 million dollars represented member bank borrowing and 200 million dollars expansion of Reserve Bank float. It is to be noted that all of the increase in Federal Reserve Bank holdings of Government securities has been in short term issues, with holdings of maturities in excess of five years actually showing a decline. In fact, about 90 per cent of the total increase has been in securities maturing in less than six months. This

has had the effect of keeping at a minimum the interest cost on the necessary increase in Federal Reserve Bank holdings of Government securities.

EXCESS RESERVES DECLINE

One of the objectives of Federal Reserve policy during the war has been to induce member banks to make fuller use of their reserves. To this end the Federal Reserve System in 1942 inaugurated the practice of buying Treasury bills at $\frac{3}{8}$ per cent, with immediate credit being given to member bank reserve accounts, and with the seller having the option to repurchase bills of a like amount and maturity if he should again have idle funds available. This step made Treasury bills the equivalent of excess reserves for all practical purposes. The use of Treasury bills was further stimulated when in April 1943 U. S. Government war loan deposits with commercial banks were made exempt from reserve requirements. This has enabled member banks to acquire bills during war loan drives, when banks' customers draw on their deposits to purchase Government securities, and to sell these bills to the Federal Reserve Banks as reserve-requiring private deposits increase through Treasury expenditures following war loan drives.

As a further inducement to member banks to utilize their excess reserves by buying short term Treasury securities, the Federal Reserve Banks in October 1942 reduced to $\frac{1}{2}$ per cent the discount rate on advances secured by Government obligations maturing or callable in one year or less. Because of the prevailing tradition against borrowing, this had little effect in expanding member bank borrowing at the Reserve Banks for some time, despite the greater profitability of using idle funds to purchase certificates of indebtedness and borrowing as funds are needed, rather than buying Treasury bills and reselling under the repurchase option. However, there are signs that the greater profitability of the former procedure is gradually breaking down the tradition against borrowing. On November 1, 1944 discounts and advances of the Federal Reserve Banks reached 359 million dollars, of which 252 million was held by the Federal Reserve Bank of New York, 30 million by the Federal Reserve Bank of Dallas, 15 million by the Federal Reserve Bank of St. Louis, and the remainder was scattered among the nine other Federal Reserve Banks.

As a result of these measures, and of the stable rate pattern maintained on other Treasury securities, member banks have been willing to reduce their excess reserves from 3 billion 31 million dollars at the end of 1941 to 1 billion 5 million dollars in the first half of October 1944. However, most of this reduction has taken place at city banks. Country banks have continued to carry substantial amounts of excess reserves. This is probably due to the fact that country banks have gained reserves faster than they wished to invest them in view of established customs regarding desired types of investment media.

Between the end of 1941 and the first half of October 1944, excess reserves of central reserve city banks in New

MATURITY DISTRIBUTION OF U. S. GOVERNMENT SECURITIES HELD BY FEDERAL RESERVE BANKS
(in millions of dollars)

| Maturity | December 31, 1941 | November 1, 1944 | Change |
|--|----------------------|---------------------|---------|
| Within 6 months..... | 96 | 13,909 | +13,813 |
| 6 months to 1 year..... | 97 | 1,859 | +1,762 |
| 1 to 5 years..... | 724 | 981 | +257 |
| Over 5 years..... | 1,337 | 857 | -480 |
| Total U. S. Government securities, direct and guaranteed | 2,254 | 17,605 | +15,351 |

Note: Amounts will not necessarily add to totals due to rounding.

York and Chicago declined from 1 billion 168 million to 29 million dollars, despite a gradual reduction in the autumn of 1942 from 26 per cent to 20 per cent in reserve requirements against net demand deposits of central reserve city banks. Excess reserves of reserve city member banks fell from 1 billion 85 million to 266 million dollars in this period, and those of country banks from 778 million to 710 million dollars. A similar pattern is visible in the Seventh District, excess reserves of all Seventh District member banks decreasing from 423 million to 136 million dollars. Excess reserves of Chicago central reserve city banks declined from 190 million to 9 million dollars, of reserve city banks from 125 million to 31 million dollars, and of country banks from 108 million to 96 million dollars.

BANK LIQUIDITY INCREASED

One of the outstanding features of the war period has been the marked improvement in the liquid position of member banks. At the end of June 1944, U. S. Government securities, demand balances with domestic banks, and excess reserves held by Seventh District member banks amounted to over two-thirds of their total deposits, compared with only one-half of their deposits at the end of 1941. The liquidity of Seventh District member banks is further demonstrated by the fact that on June 30, 1944 the total of excess reserves, demand balances due from banks, and direct U. S. Government securities maturing in five years or less were 44 per cent of total deposits, compared with 41 per cent a year earlier, and with only 26 per cent at the end of 1941.

Probably the most important factors accounting for the willingness of banks to add such large amounts to their liquid assets during the war have been uncertainty about future interest rates and deposit movements for individual banks, declining capital ratios of banks generally, and the moderate rise in short term interest rates compared with the prewar period. Moreover, the Treasury has taken steps encouraging banks to confine their purchases of Government securities to short term issues. Following the sale of thirteen-year bonds in February 1942, the Treasury has limited maturities on offerings to banks to ten years and except for the limited investment of savings deposits, has made newly offered Government securities of more than ten years maturity ineligible for commercial bank investment.

As a result of these policies by far the largest part of presently outstanding Government securities eligible for commercial bank investment consist of issues maturing in ten years or less. The total marketable interest-bearing public debt, direct and guaranteed, amounted to approximately 146 billion dollars on July 31, 1944. Of this amount about 21.5 billion dollars consisted of long term issues at present ineligible for commercial bank investment. These will only become available to commercial banks over a period of years beginning in 1946, but not in any large amounts until 1952. This leaves about 124.5 billion dollars of Government securities available for commercial bank investment, of which 108.5 billion dollars, or 87 per cent of the total, mature in ten years or less; and 72.6 billion dollars, or 58 per cent of the total, are due in five years or less.

RESERVE AND GOVERNMENT SECURITY POSITION OF SEVENTH DISTRICT MEMBER BANKS

(amounts in millions of dollars)

| | December 31, 1941 | | June 30, 1943 | | June 30, 1944 | |
|---|-------------------|----------------------------------|---------------|----------------------------------|---------------|----------------------------------|
| | Amount | Per Cent of Total Deposits | Amount | Per Cent of Total Deposits | Amount | Per Cent of Total Deposits |
| Excess reserves | 424 | 4.7 | 145 | 1.1 | 130 | .8 |
| Demand balances with banks..... | 1,122 | 12.6 | 964 | 7.5 | 1,002 | 6.4 |
| Treasury bills | 278 | 3.1 | 997 | 7.8 | 726 | 4.7 |
| Treasury certificates | — | — | 1,590 | 12.4 | 2,420 | 15.6 |
| Treasury notes | 348 | 3.9 | 818 | 6.4 | 1,698 | 10.9 |
| U. S. bonds — direct: | | | | | | |
| Maturing in 5 years or less..... | 145 | 1.6 | 710 | 5.5 | 837 | 5.4 |
| Maturing in 5 to 10 years..... | 407 | 4.6 | 1,359 | 10.6 | 2,389 | 15.4 |
| Maturing in 10 to 20 years..... | 990 | 11.1 | 1,159 | 9.1 | 958 | 6.2 |
| Maturing after 20 years | 267 | 3.0 | 237 | 1.9 | 264 | 1.7 |
| Savings bonds | — | — | 36 | .3 | 82 | .5 |
| Securities guaranteed by the U. S. Government..... | 463 | 5.2 | 354 | 2.8 | 141 | .9 |
| Total liquid funds and U. S. Government securities..... | 4,443 | 49.8 | 8,370 | 65.4 | 10,647 | 68.5 |
| Total deposits | 8,927 | 100.0 | 12,790 | 100.0 | 15,550 | 100.0 |

Note: Amounts will not necessarily add to totals due to rounding.

INDUSTRY OUTLOOK

(Continued from Page 6)

ing at least a fifth of total production in the immediate post-war years. In most, if not all, of these groups the backlog of demand, which has accumulated during the war because of interrupted production for civilian use, is expected to be very heavy.

Collectively, these ten industry groups have had comparatively small additions to plants and equipment during the war, but such expansion as has occurred has been financed well over 50 per cent by private funds. This last factor suggests a comparatively high degree of postwar usefulness of the facilities which have been built. Because many of these industries have been producing goods for the use of the armed forces which are very similar to goods normally consumed by civilians, the minimum average time required to reconvert plants is considered generally to be less than one month. Some of the industry groups will be confronted with surplus products, remaining after the requirements of the military forces and lend-lease have been met, particularly in textile-mill products, apparel, and leather. Other surpluses, however, should be more manageable.

Production of rubber goods in the district has roughly doubled during the war years and the outlook is for slight decrease, if any, following the end of the Pacific war. The district rubber industry is not heavily concentrated in any particular type of product and as a result should be able to adjust easily to demand requirements which will arise following the war.

HEAVY LUMBER DEMAND FORESEEN

Because lumber is at present one of the most limited materials available, it is certain that both the furniture and lumber groups face a continued very active production period, extending well beyond the end of the Pacific war. Almost no reconversion is needed in these industries, although some wood requires extended seasoning. Over-all prospects will depend in large part upon activity in the construction industry and the prevailing level of incomes.

Reconversion activities are expected to bring a resurgence of industrial and residential construction. Building materials, included in the stone, clay, and glass group, which played an important part in the early period of war preparations when military cantonments and industrial structures were in heavy demand, will find extensive use with the resumption of civilian building.

Leather has been in very heavy demand during the war years, but production has increased only slightly. Leather products have been extensively diverted from civilian use to the armed forces and lend-lease. With the decline in military demand, large quantities of leather and some important surplus supplies of finished products should begin to become available. Productive capacity in the industry is more than ample to meet expected needs and conversion problems will be at a minimum. Manufacturers of textile-

mill products and apparel may find themselves in roughly the same position as leather manufacturers. An immediate heavy demand, coupled with some wartime surpluses is foreseen. The latter, however, may be so specialized as to have only a moderate effect upon short-run postwar output.

With an exceedingly heavy demand for automotive gasoline, industrial and residential heating oil, and related petroleum products, the outlook for this industry group is expected to be favorable both during and for a year or more after the end of the Japanese war. Coal products, also included in the group, are dominated by coke and paving and roofing materials; consequently, steel production and construction activity will be large determinants of the demand for coal products. Because of the complexity of the industrial facilities used in this group, conversion will require as long as three months for many plants. Local surpluses are not expected to be large and most specialized war facilities probably will find peacetime use in this district.

The paper and printing industry groups have been seriously affected by heavy demands and shortages. The anticipated growth in advertising in newspapers and magazines will be an important short-run stimulus to printing and publishing as soon as restrictions are lifted and paper becomes available in sufficient quantities to meet requirements. A decrease in the volume of Government printing, however, can be expected. Once the backlog of paper demand is fulfilled, probably within two years of high production, output in this industry group may decline substantially from record wartime levels to conditions where excess capacity will once again prevail.

In general, these ten industry groups which produce materials primarily for civilian use will be relatively well situated during the reconversion period and for at least the first full year after the Pacific war has ended. Because of the expected declines in many of the larger war industries, it will be particularly important during and after conversion that high levels of production and employment be maintained in these smaller industry groups.

SOIL DEPLETION

(Continued from Page 3)

achieve sound and conservative soil management is a technical question that can be answered only by testing samples of the soil itself.

Soil science and soil testing are progressing rapidly under the guidance of able leadership in the U.S. Department of Agriculture and in the state experimental stations and the state agricultural colleges. These agencies with the assistance of others, including county agents, stand ready and anxious to apply the technical knowledge of soil science and management to the problems of the individual farmer. The task is large. Bankers can render a creative service to their communities by studying their local situations, by helping to awaken farmers to the seriousness of the problem, by financing such operations where needed, and by facilitating the cooperation of soil scientists, extension workers, and farmers.

SEVENTH FEDERAL



RESERVE DISTRICT

